

MBTC 2001

QUICK RESPONSE COMMUNITY PLANNING

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## ABSTRACT

The objective of this report is to present the outcomes of a research project conducted for formulating a unique and shortcut procedure for travel demand modeling and forecasting future traffic for small cities or urban areas with population less than 15,000, using a GIS platform. The TransCAD academic version 3.2 was used as the GIS platform. The major focus has been to reduce the time and cost for the overall travel demand modeling process. Also, the level of detail of the network required for building an appropriate travel demand model for such small areas was determined. As a case study for application of the method, McPherson, a small city in Kansas with

population of approximately 13,000, was selected. The city had proposed to divert the traffic passing through the CBD via one of its major arterials by building a new bypass on the north side of the city. The main problems associated with travel demand modeling for such small, midwestern urban areas are the lack of technical resources and unavailability of socioeconomic and demographic data in adequate detail.

Two travel demand models were developed using a different number of Traffic Analysis Zones (TAZs). One consisted of 21 TAZs and was called the high-density-zoning scheme. From the resulting values of a screenline analysis and average daily vehicle distances of travel estimated from the traffic volumes assigned to the network by the models, it was concluded that the travel demand model developed from the high-density level of network provided better results as compared to the low-density network. However, in regard to the values of traffic volume assigned to the proposed bypass, the travel demand models for the two levels essentially performed the same.

It was determined that the GIS/TransCAD platform provides useful tools for data organization and analysis of results through graphical features. It was concluded that there is a need of updating technical resources for applying these modern methods of travel demand forecasting.

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